Dytran by HBK
HOTTINGER BRÜEL & KJÆR

VC-MEMS SENSORS

Advanced sensors for a dynamic world

Dytran by HBK VC-MEMS accelerometers are used in static and dynamic applications across various industries including flight tests, transportation environment replication/simulation, modal and structural analysis, ride quality, road load, tilt, and inclination measurements.

VC-MEMS Accelerometers

VC-MEMS response accelerometers are used for steady-state linear acceleration and low frequency dynamic events, flight test, transportation environment replication/ simulation, modal and structural analysis, ride quality, road load, tilt and inclination measurements, among many others.

Dytran by HBK offers a wide range of configurations, including single axis and triaxial designs, and our new, fully analog 7576A six degree of freedom sensor and the innovative Vibracorder Series.

SINGLE AXIS

Series 7500A: High Precision MEMS Accelerometer

Features: Differential output, ultra low noise, hermetic

Benefits: Eliminates common mode noise, ultra high resolution, excellent for use in harsh environments

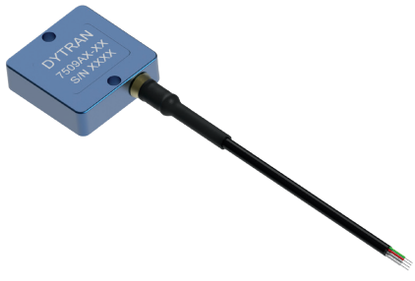
- Available in 7 ranges (±): 2g, 10g, 25g, 50g, 100g, 200g, 400g
- Sensitivities (mV/g): 1,000, 200, 80, 40, 20, 10, 5
- Available frequency ranges (±3dB) from: 0-400 Hz to 0-4,000 Hz
- 13 grams

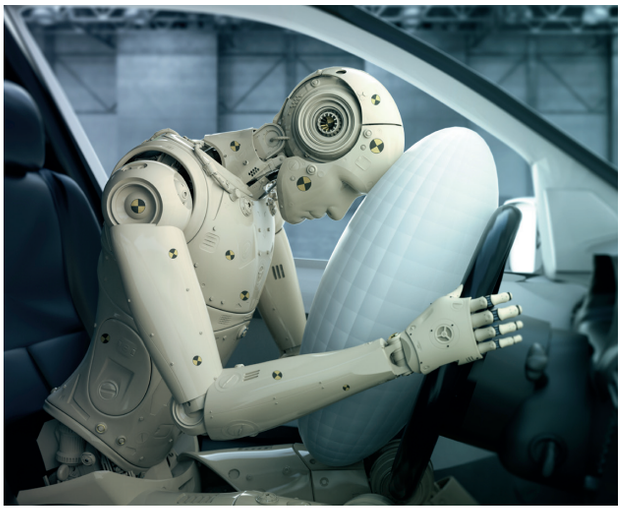
Series 7509A: DC Response Accelerometer

Features: Differential ouput, integral cable, low noise, industry standard thru-hole

Benefits: Low cost, eliminates common mode noise

- Available in 8 ranges (±): 2g, 5g, 10g, 25g, 50g, 100g, 200g, 400g
- Sensitivities (mV/g): 2,000, 800, 400, 160, 80, 40, 20, 10
- Available frequency ranges (±3dB) from: 0-300 Hz to 0-2,000 Hz
- 13 grams



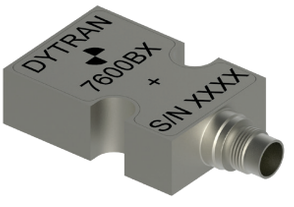


Series 7600B: High Precision MEMS Accelerometer

Features: Differential output, low noise, hermetic

Benefits: Drop in replacement for piezo-resistive sensors, stable output over varying temperatures, eliminates common mode noise

- Available in 3 ranges (±): 25g, 50g, 200g
- Sensitivities (mV/g): 20, 10, 2.5
- Available frequency ranges (±3dB) from: 0-900 Hz to 0-1,750 Hz
- 3.6 grams



Series 7531A: DC Response Accelerometer

Features: Integral cable, low current consumption, easily mounted with adhesives or mounting screws

Benefits: Low cost, single ended output, internal voltage regulation

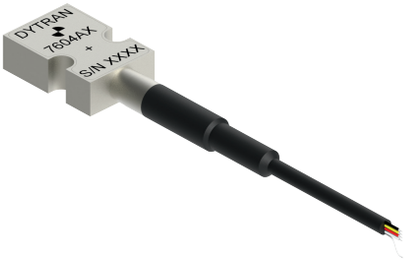
- Available in 3 ranges (±): 3g, 5g, 16g
- Sensitivities (mV/g): 300, 174, 57
- Available frequency ranges (-3dB) from: 0-1,600 Hz
- 6 grams

Model 7604A1: High Precision MEMS Accelerometer

Features: Environmental boot, differential output, integral cable, hermetic

Benefits: Splash proof operation, drop in replacement for piezo- resistive sensors, eliminates common mode noise

- Available in range (±): 5g
- Sensitivities (mV/g): 100
- Available frequency ranges (±3dB) from: 0-400 Hz
- 3.6 grams



Model 7700A3: High Precision MEMS Accelerometer

Features: Rugged, mini 4-pin connector, removable 10-32 stud, hermetic

Benefits: Drop in replacement for piezo-resistive sensors, rugged, small packaging, ideal for flight testing

- Available in range (±): 25g
- Sensitivities (mV/g): 20
- Available frequency ranges (±3dB) from: 0-1,400 Hz
- 8 grams

7577A Series: High Precision MEMS Accelerometer

Features: Measures extended frequency range, low profile, high shock survival, differential output, hermetic

Benefits: For applications requiring position and vibration measurements in both land based and flight vehicles

- Available in 2 ranges (±): 200g, 5g
- Sensitivities (mV/g): 20, 800
- Available frequency ranges (±3dB) from: 0-1,900 Hz to 0-7,000 Hz
- 20 grams

SIX DEGREES OF FREEDOM (6DOF) SENSOR

Series 7576A provides end users with a highly capable, cost effective, small size 6DOF accelerometer for myriad sensing applications.

These sensors contain three MEMS-based single axis accelerometers and three MEMS-based gyro sensors to monitor the translational and rotational components of motion at the same physical point. This is used to determine the location of the center of rotation of a rigid body inside space.

Typical uses include: vehicle dynamics, ride and handling, rollover, aerospace testing, large machinery including industrial off-road, aircraft flight dynamics, aircraft ground test, amusement ride monitoring, and playground surface investigation.

7576A Series: Analog 6DOF Sensor

Features: Available in various ranges, great bias stability, hermetic

Benefits: Improved electrical noise performance, enhanced frequency response, excellent for use in harsh environments

- Accel sensitivity (mV/g): 470, 235, 78.33, 1175, 1200
- Accel range (±): 5g, 10g, 30g, 2g
- Gyro sensitivity (mV/°/sec): 25, 12.5, 7, 25, 12.5
- Accel. frequency ranges (±3dB) from: 0-1,150 Hz to 0-3,800 Hz
- 55 grams

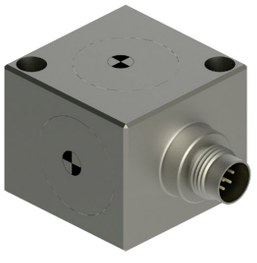
TRIAXIAL

Series 7503D: High Precision MEMS Accelerometer

Features: Low noise, differential output, measures lower level vibrations, hermetic

Benefits: Ultra high resolution, eliminates common mode noise

- Available in 10 ranges (±): 2g, 5g, 10g, 25g, 50g, 100g, 200g, 400g,D9: ±5(X and Y), ±25(Z), D10: ±5(X and Y), ±50(Z)
- Sensitivities (mV/g): 2,000, 800, 160, 80, 40, 10 D9: 800(X and Y), 160(Z), D10: 800(X and Y), 80(Z)
- Available frequency ranges (±3dB) from: 0-400 Hz to 0-4,000 Hz D9: 0-800(X and Y), 0-1,500(Z), D10: 0-800(X and Y), 0-2,700(Z)
- 38 grams

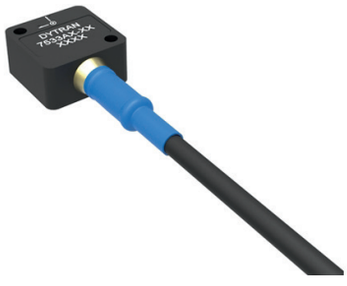


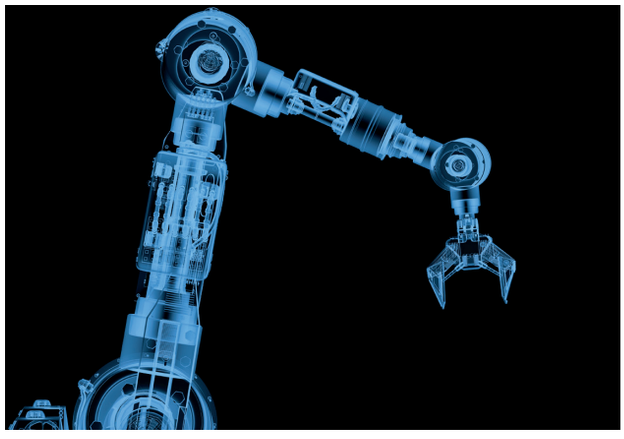
Series 7533A: High Precision MEMS Accelerometer

Features: Integral cable, low current consumption

Benefits: Low cost, single ended output, internal voltage regulation

- Available in 6 ranges (±): 2g, 3g, 5g, 16g, 200g, 40g
- Sensitivities (mV/g): 420, 174, 57, 6.5, 20
- Axes X and Y: 0 to 1,600 Hz frequency range (-3dB)
- Axis Z: 0 to 550 Hz frequency range (-3dB)
- 6 grams



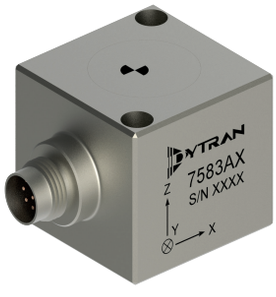


Series 7583A: Sensor with Extended Frequency Response

Features: Differential output, measures extended frequency response, hermetic, DC-MEMS

Benefits: Models include 7Khz operation for flight test applications requiring higher g's with higher frequency response

- Available in 4 ranges (±): 5g, 10g, 30g, 100g
- Sensitivities (mV/g): 800, 400, 133, 40
- Available frequency ranges (±3dB) from: 0-1,900 Hz to 0-5,000 Hz
- 38 grams



Model 7613A5: High Precision MEMS Accelerometer

Features: Differential output, low noise, integral cable terminating to flying leads, hermetic

Benefits: Drop-in replacement for piezo-resistive sensors, separate power supply for each channel

- Range (±): 50g
- Sensitivities (mV/g): 10
- Available frequency ranges (±3dB) from: 0-2,000 Hz
- 45 grams

Series 7603D: High Precision MEMS Accelerometer

Features: Differential output, low noise, hermetic

Benefits: Drop-in replacement for piezo-resisitive sensors, stable output over varying temperature

- Available in 4 ranges (±): 2g, 25g, 50g, 200g
- Sensitivities (mV/g): 250, 20, 10, 2.5
- Available frequency ranges (±3dB) from: 0-400 Hz to 0-3,000 Hz
- 38 grams

Advanced Sensing

PORTABLE VIBRATION RECORDERS

The VibraCorder™ product line offers an innovative cost-effective solution for capturing critical vibration data in real-world applications!

Offered in various configurations, these compact, and lightweight units include easily installed, user-configurable software that optimizes data collection. Internal accelerometers eliminate the need for external cable runs and complex signal conditioning. Robust anti-aliasing filters ensure data integrity. Test data is stored on a convenient removable memory SD card that plugs directly into your laptop.

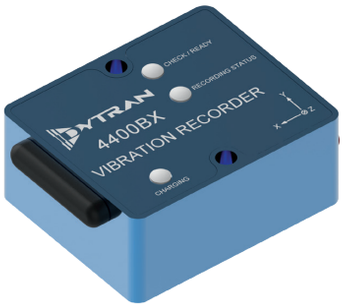
All VibraCorder™ products feature internal rechargeable batteries and remote power options for short and long duration tests. RoHS and CE certification pending.

VibraCorder™: Model 4400B Vibration Recorder

Features: General purpose vibration recorder with a built-in triaxial MEMS accelerometer, synchronization capabilities, triggered data acquisition, available in three ranges
Benefits: Compact, provides simplified data collection. Start data collection with a variety of convenient triggering methods.

Benefits: Environmentally sealed interface connector, synchronous data capture between multiple units with a wired connection, and external power capability for extended data capture.

- Ranges (±): 2g, 19g, 200g
- Battery Life: >15 hrs
- Sampling Rates: 100, 500, 1,000, 5,000, 10,000 Samples/sec
- IP 64 rated



VibraCorder™ II: 4401A Series

Features: Captures 6DoF, static and dynamic acceleration measurements, software-controlled relay for the operation of external components such as cameras and indicator lights.

Benefits: Records on-the-spot static and dynamic 6DOF measurements. Includes antialiasing filters, external power through a 9-pin D-sub connector, software-controlled relay.

- Ranges (±): 5g, 16g
- Battery Life: 8 hrs
- Sampling Rates: 250, 1,200, 4,280 Samples/sec
- IP 65 rated

VibraCorder™ III: 4404A Series

Features: Captures 6DoF data for whole-body vibration measurements in extreme environments, 3% transverse sensitivity, remote triggering capabilities.

Benefits: Captures 6 Degrees of Freedom data for whole-body vibration measurements in extreme environments. Enables capture of on-the-spot 6DoF, static, and dynamic acceleration measurements. Easily installed, user-configurable software optimizes data collection while built-in firmware handles acceleration in three axes as well as gyroscope data on the removable microSD card.

- Ranges (±): 2g, 5g, 10g, 30g, 200g
- Battery Life: 8 hrs
- Sampling Rates: 120, 250, 256, 500, 512, 720, 1024, 1,200 Samples/sec
- IP 67 rated

CVLD ACCELEROMETERS

These sensors are designed with an advanced, internal electrical circuit to simulate a CVLD (Constant Voltage Line Driver) sensor. This allows for variable capacitance VC MEMS acceleration measurements to be made over data acquisition channels normally reserved for current mode sensors.

These CVLD sensors are tailored for use in the following applications; flight testing, flutter testing, and low frequency aircraft/airframe vibration measurements.

7506A Series: High Precision MEMS Accelerometer

Features: Low pass filtered, 3-pin connector, ultra low noise, 4-20 mA loop compatible, hermetic, current mode device

Benefits: Great for measuring static and dynamic acceleration throughout a vehicle during flight, ideal for extended cable runs

- Available in 2 ranges (±): 50g, 400g
- Sensitivities (µA/g): 100, 13
- Frequency ranges (-3dB): 0 to 300 Hz
- 70 grams

Model 7508A2: High Precision MEMS Accelerometer

Features: Ultra low noise, 3-pin connector, 4-20 mA loop compatible, hermetic, current mode device

Benefits: Great for measuring static and dynamic acceleration throughout a vehicle during flight, ideal for extended cable runs

- Range: ±400g
- Sensitivity (µA/g): 13
- Frequency ranges (-3dB): 0 to 2,500 Hz
- 70 grams

VC-MEMS Cables and Accessories

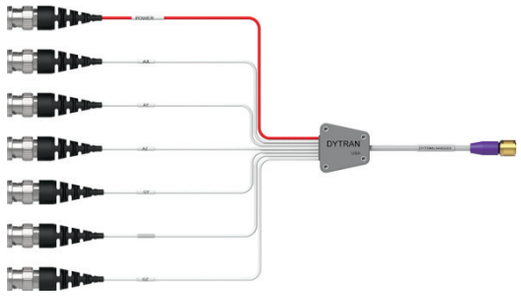
POPULAR CABLE CHOICES FOR VC-MEMS SENSORS

Dytran designs and manufactures a wide variety of cables for your testing and monitoring requirements. Our cable assemblies are designed and manufactured in the USA and are made with our customers challenging environments in mind.

We offer a broad range of standard products as well as custom cables made to customer specifications.

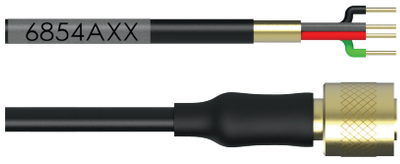
6445A Series: 9-pin (5-16/32) plug to (7) BNC plugs

- Eight conductor
- For use with 6DOF Sensor
- Teflon™ jacket
- Compatible with 7576A



6854A Series: 4-pin plug (1/4-28) to pigtails

- Four conductor
- General purpose
- Teflon™ jacket
- Compatible with 7500A



6877A Series: 4-pin plug (1/4-28) to 4-pin jack

- Four conductor
- General purpose
- Teflon™ jacket
- Compatible with 7500A

6895A Series: 4-pin plug (M4.5 x 0.35) to cutoff

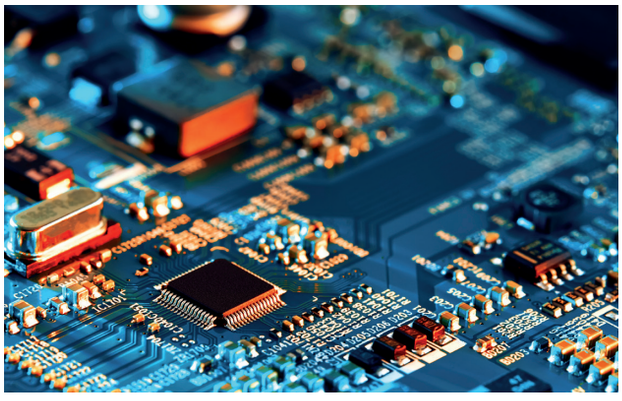
- Four conductor
- General purpose, low outgassing
- Teflon™ jacket
- Compatible with 7600B, 7700A

6956A Series: 4–pin plug to (3) D–SUB 9–pin jacks

- Eight conductor
- General purpose
- Teflon™ jacket
- Compatible wtih 7503D, 7563A

6964A Series: 9–pin plug to flying leads

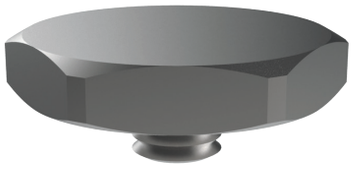
- Eight conductor
- General purpose
- Teflon™ jacket
- Compatible with 7503D, 7563A, 7576A



MOUNTING BASE

Model 6213 Adhesive Mounting Base

- 10-32 stud mount
- 0.63 inch hex
- 0.260 inches thick
- Stainless steel
- Compatible with 7705A



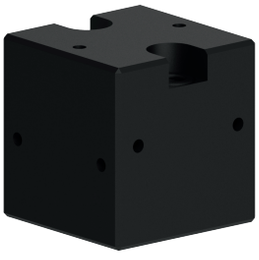
Model 6258 Magnetic Mounting Base

- 10-32 stud
- 0.625 inch hex
- 0.39 inches thick
- Stainless steel
- Compatible with 7705A

MOUNTING BLOCK

Model 6717: Triaxial Mounting Block

- 4-40 threads
- 1.2 inch cube
- Anodized aluminum
- Compatible with 7500A



Model 6749: Triaxial Mounting Block

- 4–40 threads
- 1.00 x 1.00 x 0.75 inches
- Aluminum
- Compatible with 7600B, 7604A

MOUNTING SCREWS

Series 6535: Mounting Screw

- 8–32 thread
- Available in 0.50, 0.75 inches long
- Stainless steel
- Compatible with 7500A, 7504A

MOUNTING STUD

6200 Series: Mounting Stud

- 10–32 to 10–32
- 0.27 inches long
- Available materials: beryllium copper, stainless steel

6200

6200

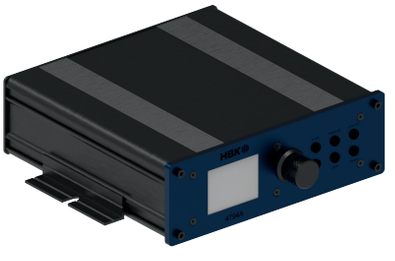
Model 6691: Mounting Stud

- 1/4–28 to M6
- 0.38 inches long
- Beryllium copper

SIGNAL CONDITIONER

Model 4794A: Signal Condition Amplifier

- 3 channel
- Operates with MEMS accelerometers
- Variable range and sensitivities
- LP filters, user-selectable



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